



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE  
DALLAS, TEXAS 75202-2733

OCT 07 2015

Village of Milan  
c/o Ms. Marcella Sandoval  
P.O. Box 2727  
Milan, New Mexico 87021

RE: EPA Explanation of Results from Samples Collected from Your Well.

mDear Ms. Sandoval:

Dear Ms. Sandoval:

This is a follow-up to our July 2015 letter in which we provided the results of water collected from your well(s). Enclosed is a table with a brief explanation of the results for the water samples collected on your property by the NMED for the EPA in October 2014. This information is being provided to you to assist in better understanding what the results mean.

We would like to invite you to a Grants Mining District community meeting that the EPA staff will be hosting on Tuesday, October 27, 2015, at the Cibola County Building at 515 West High Street in Grants. The staff from EPA will be available starting at 5:00pm to answer question you may have regarding your results, prior to the start of the community meeting.

Thank you for participating in the well sampling program. The EPA is continuing to review information and investigate groundwater quality in the area. Well owners may be contacted again for permissions to conduct follow-up or confirmatory well sampling as necessary.

Please contact me at (214) 665-6666 or via email at [turner.ladonna@epa.gov](mailto:turner.ladonna@epa.gov) if you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "LaDonna Turner".

LaDonna Turner  
Site Assessment Manager  
Risk and Site Assessment Section  
Superfund Division

Enclosure

## **Grants Mining District, NM**

### **Village of Milan**

#### **Well Water Chemical/Radionuclide Results**

##### **Background**

The EPA, as part of its investigation of ground water uranium contamination in the San Mateo Creek Basin, collected samples from several private water wells. The wells were tested to assess the chemical characteristic of the water and tested for the level of radionuclides, including uranium. Individual letters with results of the wells were sent to each of the well owners July 2015. Additional information regarding the results are provided herein.

While the EPA regulates public water systems, it does not have the authority to regulate private drinking water wells. A private well that services a home is not required to meet the Federal Drinking Water Standards, but these standards can be used to evaluate the quality of drinking water. Households that use well water for drinking must take special precautions to ensure protection of their drinking water supply not only from chemicals and radionuclides but also from bacteria, viruses, parasites and microorganisms (See Attachment A).

##### **Findings and Recommendations**

Your water wells designated as LSM-43, LSM-44 and LSM-45 met the chemical and radionuclides health-based primary drinking water standards (i.e. Maximum Contaminant Level-MCL) and is considered safe for use as a drinking water supply.

Your water well designated as MW-907 exceeded the health-based primary drinking

water standards (i.e. MCL) value for arsenic, antimony, beryllium, cadmium and thallium and is considered not safe to use as a drinking water supply.

Your water wells, designated as LSM-45 and MW-907 exceeded the secondary MCLs for total dissolved solids and sulfates. MW-907 also exceeded the secondary MCL values for iron and manganese. Secondary MCLs relate to aesthetic effects (color, odor, or taste). The EPA believes if contaminants are present in water at levels above their secondary MCL standards, the contaminants may cause the water to appear cloudy or colored, or to taste or smell bad. This may cause people to stop using water from their well water system even though the water is actually safe to drink.

According to the EPA<sup>1</sup>, the following treatment method(s) have proven to be effective in reducing these contaminants below their Secondary MCLs:

Conventional treatments like filtration removes metals like iron, manganese and zinc. Aeration removes odors, iron and manganese. Granular activated carbon will remove most of the contaminants which cause odors, color, and foaming.

Non-conventional treatments like distillation, reverse osmosis and electrodialysis are effective for removal of chloride, nitrates, total dissolved solids and other inorganic substances.

As for animal health or questions regarding animal health, please contact your county extension services.<sup>2</sup>

<sup>1</sup> EPA web page

<http://water.epa.gov/drink/contaminants/secondarystandards.cfm#five>

<sup>2</sup> Cibola County Extension Services phone number 505-287-9266. web page <http://cibolaextension.nmsu.edu/>



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## Human Health Evaluation for the Consumption of Produce, Beef, Milk, Poultry and Egg

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Because water from your wells may be used to grow crops or for livestock, the EPA also evaluated the potential cancer risk to human health from indirect exposure to radionuclides from the consumption of produce, beef, milk, poultry and eggs.

The total estimated risk was calculated by summing up all cancer risks from radionuclides of concern through all assumed potential indirect exposure pathways. The total estimated excess cancer risk for radionuclides in your wells LSM-43, LSM-44, LSM-45 and MW-907 from consumption of produce, beef, milk, poultry and eggs were below the EPA's acceptable upper end of the risk range. Therefore consumption of produce from your private garden, beef, milk, poultry and eggs from animals raised on your property should not present a health hazard.

Your wells can be used to irrigate your vegetable garden and water your animals.

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### Comparison to Primary and Secondary Maximum Contaminant Level (MCL<sup>3</sup>)

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The attached table contains the primary and secondary MCL values and potential health effects associated with exposures above the MCL. Your well water results were compared with MCL values.

Below are some examples of comparing your results to MCL values:

The MCL for Ra-226 plus Ra-228 combined is 5 picocuries per liter (pCi/L). The results from your well LSM-43 has a Ra-226 = 0.08 pCi/L and Ra-228 = 0.14 U<sup>4</sup> pCi/L for a combined sum of 0.22 pCi/L. The total of 0.22 pCi/L is less than the MCL of 5 pCi/L for radium 226

and radium 228 combined. Therefore, the radium 226 and radium 228 levels in your well water should not present a health hazard.

The MCL for total uranium as a metal is 0.030 milligrams per liter (mg/L). The total uranium in your well water designated as LSM-43 is 0.005 mg/L which is less than the MCL value.

Therefore uranium in the well water does not present a risk to human health.

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### Dissolved Radon Gas in Well Water

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Only about 1-2 percent of radon in indoor air comes from drinking water sources. However breathing radon released to air from tap water increases the risk of lung cancer over the course of your lifetime. Drinking water containing radon also presents a risk of developing internal organ cancers, primarily stomach cancer. However, the risk of internal organ cancers is smaller than the risk of developing lung cancer from radon released to air from tap water.

Currently there is no state or federal regulatory standard for radon in drinking water, however, the EPA has proposed to require community water suppliers to provide water with radon levels no higher than 4,000 pCi/L, which contributes about 0.4 pCi/L of radon to indoor air. The EPA also proposed a standard of 300 pCi/L which contributes about 0.03 pCi/L of radon to indoor air, for communities without indoor air radon outreach programs.

Radon level in your wells LSM-43, LSM-44 and LSM-45 was measured and found to be 462.2 pCi/L, 814 pCi/L, and 1113 pCi/L respectively. These radon levels are higher than the 300 pCi/L but lower than the 4,000 pCi/L EPA's proposed standards. Radon level was not measured in well MW-907. Again the greatest

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<sup>3</sup> MCL = maximum contaminant level are national drinking water regulation standards.

<sup>4</sup> U=Not detected at the detection limit. A conservative assumption is made that the contaminant is present at its detection level.

risk from radon in drinking water is from the radon that escapes to the indoor air.

If you haven't tested your home for radon in air, contact your State. Radon test kits can be purchased by New Mexico residents online using the "New Mexico Radon Program" link at [www.drhomeair.com](http://www.drhomeair.com) or by calling 1-800-324-5928 and following the instructions for "The State of New Mexico Radon Test Kit Program" option.

For more information on radon gas refer to "A Citizen's Guide to Radon" at the following the EPA web page  
<http://www.epa.gov/radon/pubs/citguide.html>



## Attachment A

### Human Health<sup>5</sup>

The first step to protect your health and the health of your family is learning about what may pollute your source of drinking water. Potential contamination may occur naturally, or as a result of human activity.

What are Some Naturally Occurring Sources of Contamination?

- **Microorganisms:** Bacteria, viruses, parasites and other microorganisms are sometimes found in water. Shallow wells — those with water close to ground level — are at most risk. Runoff, or water flowing over the land surface, may pick up these pollutants from wildlife and soils. This is often the case after flooding. Some of these organisms can cause a variety of illnesses. Symptoms include nausea and diarrhea. These can occur shortly after drinking contaminated water. The effects could be short-term yet severe (similar to food poisoning) or might recur frequently or develop slowly over a long time.
- **Radionuclides:** Radionuclides are radioactive elements such as uranium and radium. They may be present in underlying rock and ground water
- **Radon:** Radon is a gas that is a natural product of the breakdown of uranium in the soil — can also pose a threat. Radon is most dangerous when inhaled and contributes to lung cancer. Although soil is the primary source, using household water containing Radon contributes to elevated indoor Radon levels. Radon is less dangerous when consumed in water, but remains a risk to health.
- **Nitrates and Nitrites:** Although high nitrate levels are usually due to human activities (see below), they may be found naturally in ground water. They come from the breakdown of nitrogen compounds in the soil. Flowing ground water picks them up from the soil. Drinking large amounts of nitrates and nitrites is particularly threatening to infants (for example, when mixed in formula).
- **Heavy Metals:** Underground rocks and soils may contain arsenic, cadmium, chromium, lead, and selenium. However, these contaminants are not often found in household wells at dangerous levels from natural sources.
- **Fluoride:** Fluoride is helpful in dental health, so many water systems add small amounts to drinking water. However, excessive consumption of naturally occurring fluoride can damage bone tissue. High levels of fluoride occur naturally in some areas. It may discolor teeth, but this is not a health risk.

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<sup>5</sup> Source is from EPA web page <http://water.epa.gov/drink/info/well/health.cfm>

**Maximum Contaminant Level (MCL) for Drinking Water**

<b>Results for Village of Milan Marcella Sandoval Well Water LSM-43 Compared to MCL/RSL Values</b>				
<b>Contaminant</b>	<b>Results (pCi/L) 10/6/2014</b>	<b>MCL or TT<sup>1</sup> (pCi/L)<sup>2</sup></b>	<b>Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)</b>	<b>Results Compared to MCL</b>
<a href="#"><u>Gross Alpha particles</u></a>	5.5-3.35 <sup>3</sup> = 2.15	15 picocuries per Liter (pCi/L)	Increased risk of cancer	< MCL
<a href="#"><u>Beta particles and photon emitters</u></a>	Cs-137 <sup>4</sup> =3.9 pCi/L Equivalent to 0.078 millirem per year	4 millirem per year	Increased risk of cancer	<MCL
<a href="#"><u>Radium 226 and Radium 228 (combined)</u></a>	Ra-226= 0.08 Ra-228= 0.14 U Combined = 0.22	5 pCi/L	Increased risk of cancer	< MCL
<b>Radon</b>	462.2	Proposed MCL 300/4000 pCi/L	Increased risk of cancer	See discussion in letter.
<a href="#"><u>Uranium</u></a>	5 µg/L	30 µg/L as of 12/08/03	Increased risk of cancer, kidney toxicity	< MCL

**Results for Village of Milan Marcella Sandoval Well Water LSM-43 Compared to MCL/RSL Values**

Inorganic Chemicals	Results (mg/L) 10/6/2014	Primary MCL <sup>1</sup> or TT <sup>1</sup> (mg/L) <sup>2</sup>	Secondary MCL (SMCL) <sup>1</sup> (mg/L) <sup>2</sup>	RSL <sup>5</sup> Non-Cancer Child (mg/L)	Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)	Results Compared to MCL/RSL
Aluminum	0.1 U	-----	0.05 to 0.2		Colored water	ND
<a href="#">Antimony</a>	0.002 U	0.006			Increase in blood cholesterol; decrease in blood sugar	ND
<a href="#">Arsenic</a>	0.002 U	0.010 as of 01/23/06			Skin damage or problems with circulatory systems, and may have increased risk of getting cancer.	ND
<a href="#">Barium</a>	0.0312	2			Increase in blood pressure	< MCL
<a href="#">Beryllium</a>	0.005 U	0.004			Intestinal lesions	ND
<a href="#">Cadmium</a>	0.005 U	0.005			Kidney damage	ND
<a href="#">Chromium (total)</a>	0.01 U	0.1			Allergic dermatitis	ND
Chloride	48	-----	250		Salty taste	< SMCL
<a href="#">Copper</a>	0.02 U	1.3 TT <sup>6</sup> ; Action Level=1.3	1.0		Short term exposure: Gastrointestinal distress. Long term exposure: Liver or kidney damage. People with Wilson's Disease should consult their personal doctor if the amount	ND



Results for Village of Milan Marcella Sandoval Well Water LSM-43 Compared to MCL/RSL Values						
Inorganic Chemicals	Results (mg/L) 10/6/2014	Primary MCL <sup>1</sup> or TT <sup>1</sup> (mg/L) <sup>2</sup>	Secondary MCL (SMCL) <sup>1</sup> (mg/L) <sup>2</sup>	RSL <sup>5</sup> Non-Cancer Child (mg/L)	Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)	Results Compared to MCL/RSL
					of copper in their water exceeds the action level. Metallic taste; blue-green stain	
Fluoride	0.37	4	2		Bone disease (pain and tenderness of the bones); Children may get mottled teeth. Tooth discoloration above the secondary MCL.	< MCL
Iron	0.025 U	-----	0.3		Rusty color; sediment; metallic taste; reddish or orange staining.	< SMCL
<u>Lead</u>	0.002 U	TT <sup>6</sup> ; Action Level=0.015			Infants and children: Delays in physical or mental development; children could show slight deficits in attention span and learning abilities  Adults: Kidney problems; high blood pressure	ND
Manganese	0.005 U	-----	0.05		Black to brown color; black staining; bitter metallic taste.	ND
<u>Mercury (inorganic)</u>	0.0002 U	0.002			Kidney damage	ND
Molybdenum	0.0033	-----	-----	0.1	Increased uric acid in blood-Gout	< RSL
Nickel	0.02 U	-----	-----	0.390	Decreased body and organ weights	ND



Results for Village of Milan Marcella Sandoval Well Water LSM-43 Compared to MCL/RSL Values						
Inorganic Chemicals	Results (mg/L) 10/6/2014	Primary MCL <sup>1</sup> or TT <sup>1</sup> (mg/L) <sup>2</sup>	Secondary MCL (SMCL) <sup>1</sup> (mg/L) <sup>2</sup>	RSL <sup>5</sup> Non-Cancer Child (mg/L)	Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)	Results Compared to MCL/RSL
<u>Nitrate (measured as Nitrogen)</u>	3.32	10			Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	< MCL
<u>Nitrite (measured as Nitrogen)</u>	0.0006 U	1			Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	ND
pH	7.27	-----	6.5-8.5		Low pH: bitter metallic taste; corrosion high pH: slippery feel; soda taste; deposits	Within Range
<u>Selenium</u>	0.0082	0.05			Hair or fingernail loss; numbness in fingers or toes; circulatory problems	< MCL
Silver	0.01 U	-----	0.1		Skin discoloration; graying of the white part of the eye	ND
Sulfate	143	-----	250		Salty taste	< SMCL
<u>Thallium</u>	0.002 U	0.002			Hair loss; changes in blood; kidney, intestine, or liver problems	ND

Results for Village of Milan Marcella Sandoval Well Water LSM-43 Compared to MCL/RSL Values						
Inorganic Chemicals	Results (mg/L) 10/6/2014	Primary MCL <sup>1</sup> or TT <sup>1</sup> (mg/L) <sup>2</sup>	Secondary MCL (SMCL) <sup>1</sup> (mg/L) <sup>2</sup>	RSL <sup>5</sup> Non-Cancer Child (mg/L)	Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)	Results Compared to MCL/RSL
Total Dissolved Solids (TDS)	490	-----	500		Hardness; deposits; colored water; staining; salty taste	< SMCL
Vanadium	0.02 U	-----	-----	0.086	Decreased hair cysteine – brittle hair	ND
Zinc	0.02 U	-----	5		Metallic taste	ND



### Maximum Contaminant Level (MCL) for Drinking Water

Results for Village of Milan Marcella Sandoval Well Water LSM-44 Compared to MCL/RSL Values				
Contaminant	Results (pCi/L) 10/6/2014	MCL or TT <sup>1</sup> (pCi/L) <sup>2</sup>	Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)	Results Compared to MCL
<a href="#"><u>Gross Alpha particles</u></a>	3.6-2.68 <sup>3</sup> = 2.15	15 picocuries per Liter (pCi/L)	Increased risk of cancer	< MCL
<a href="#"><u>Beta particles and photon emitters</u></a>	Cs-137 <sup>4</sup> =4.7 pCi/L Equivalent to 0.094 millirem per year	4 millirem per year	Increased risk of cancer	<MCL
<a href="#"><u>Radium 226 and Radium 228 (combined)</u></a>	Ra-226= 0.08 Ra-228= 0.15 U Combined = 0.23	5 pCi/L	Increased risk of cancer	< MCL
Radon	814	Proposed MCL 300/4000 pCi/L	Increased risk of cancer	See discussion in letter.
<a href="#"><u>Uranium</u></a>	4 µg/L	30 µg/L as of 12/08/03	Increased risk of cancer, kidney toxicity	< MCL

**Results for Village of Milan Marcella Sandoval Well Water LSM-44 Compared to MCL/RSL Values**

Inorganic Chemicals	Results (mg/L) 10/6/2014	Primary MCL <sup>1</sup> or TT <sup>1</sup> (mg/L) <sup>2</sup>	Secondary MCL (SMCL) <sup>1</sup> (mg/L) <sup>2</sup>	RSL <sup>5</sup> Non-Cancer Child (mg/L)	Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)	Results Compared to MCL/RSL
Aluminum	0.1 U	-----	0.05 to 0.2		Colored water	ND
<a href="#">Antimony</a>	0.002 U	0.006			Increase in blood cholesterol; decrease in blood sugar	ND
<a href="#">Arsenic</a>	0.002 U	0.010 as of 01/23/06			Skin damage or problems with circulatory systems, and may have increased risk of getting cancer.	ND
<a href="#">Barium</a>	0.0262	2			Increase in blood pressure	< MCL
<a href="#">Beryllium</a>	0.005 U	0.004			Intestinal lesions	ND
<a href="#">Cadmium</a>	0.005 U	0.005			Kidney damage	ND
<a href="#">Chromium (total)</a>	0.01 U	0.1			Allergic dermatitis	ND
Chloride	14	-----	250		Salty taste	< SMCL
<a href="#">Copper</a>	0.02 U	1.3 TT <sup>6</sup> ; Action Level=1.3	1.0		Short term exposure: Gastrointestinal distress. Long term exposure: Liver or kidney damage. People with Wilson's Disease should consult their personal doctor if the amount	ND



**Results for Village of Milan Marcella Sandoval Well Water LSM-44 Compared to MCL/RSL Values**

Inorganic Chemicals	Results (mg/L) 10/6/2014	Primary MCL <sup>1</sup> or TT <sup>1</sup> (mg/L) <sup>2</sup>	Secondary MCL (SMCL) <sup>1</sup> (mg/L) <sup>2</sup>	RSL <sup>5</sup> Non-Cancer Child (mg/L)	Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)	Results Compared to MCL/RSL
					of copper in their water exceeds the action level. Metallic taste; blue-green stain	
Fluoride	0.35	4	2		Bone disease (pain and tenderness of the bones); Children may get mottled teeth. Tooth discoloration above the secondary MCL.	< MCL
Iron	0.025 U	-----	0.3		Rusty color; sediment; metallic taste; reddish or orange staining.	< SMCL
<u>Lead</u>	0.002 U	TT <sup>6</sup> ; Action Level=0.015			Infants and children: Delays in physical or mental development; children could show slight deficits in attention span and learning abilities  Adults: Kidney problems; high blood pressure	ND
Manganese	0.005 U	-----	0.05		Black to brown color; black staining; bitter metallic taste.	ND
<u>Mercury (inorganic)</u>	0.0002 U	0.002			Kidney damage	ND
Molybdenum	0.0022	-----	-----	0.1	Increased uric acid in blood-Gout	< RSL
Nickel	0.02 U	-----	-----	0.390	Decreased body and organ weights	ND

Results for Village of Milan Marcella Sandoval Well Water LSM-44 Compared to MCL/RSL Values						
Inorganic Chemicals	Results (mg/L) 10/6/2014	Primary MCL <sup>1</sup> or TT <sup>1</sup> (mg/L) <sup>2</sup>	Secondary MCL (SMCL) <sup>1</sup> (mg/L) <sup>2</sup>	RSL <sup>5</sup> Non-Cancer Child (mg/L)	Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)	Results Compared to MCL/RSL
<a href="#">Nitrate (measured as Nitrogen)</a>	2.87	10			Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	< MCL
<a href="#">Nitrite (measured as Nitrogen)</a>	0.0006 U	1			Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	ND
pH	7.31	-----	6.5-8.5		Low pH: bitter metallic taste; corrosion high pH: slippery feel; soda taste; deposits	Within Range
<a href="#">Selenium</a>	0.0099	0.05			Hair or fingernail loss; numbness in fingers or toes; circulatory problems	< MCL
Silver	0.01 U	-----	0.1		Skin discoloration; graying of the white part of the eye	ND
Sulfate	180	-----	250		Salty taste	< SMCL
<a href="#">Thallium</a>	0.002 U	0.002			Hair loss; changes in blood; kidney, intestine, or liver problems	ND



Results for Village of Milan Marcella Sandoval Well Water LSM-44 Compared to MCL/RSL Values						
Inorganic Chemicals	Results (mg/L) 10/6/2014	Primary MCL <sup>1</sup> or TT <sup>1</sup> (mg/L) <sup>2</sup>	Secondary MCL (SMCL) <sup>1</sup> (mg/L) <sup>2</sup>	RSL <sup>5</sup> Non-Cancer Child (mg/L)	Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)	Results Compared to MCL/RSL
Total Dissolved Solids (TDS)	526	-----	500		Hardness; deposits; colored water; staining; salty taste	< SMCL
Vanadium	0.02 U	-----	-----	0.086	Decreased hair cysteine – brittle hair	ND
Zinc	0.02 U	-----	5		Metallic taste	ND

### Maximum Contaminant Level (MCL) for Drinking Water

Results for Village of Milan Marcella Sandoval Well Water LSM-45 Compared to MCL/RSL Values				
Contaminant	Results (pCi/L) 10/6/2014	MCL or TT <sup>1</sup> (pCi/L) <sup>2</sup>	Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)	Results Compared to MCL
<a href="#"><u>Gross Alpha particles</u></a>	10.5-8.04 <sup>3</sup> = 2.46	15 picocuries per Liter (pCi/L)	Increased risk of cancer	< MCL
<a href="#"><u>Beta particles and photon emitters</u></a>	Cs-137 <sup>4</sup> =7.2 pCi/L Equivalent to 0.144 millirem per year	4 millirem per year	Increased risk of cancer	<MCL
<a href="#"><u>Radium 226 and Radium 228 (combined)</u></a>	Ra-226= 0.18 Ra-228= 0.14 U Combined = 0.32	5 pCi/L	Increased risk of cancer	< MCL
Radon	1113	Proposed MCL 300/4000 pCi/L	Increased risk of cancer	See discussion in letter.
<a href="#"><u>Uranium</u></a>	12 µg/L	30 µg/L as of 12/08/03	Increased risk of cancer, kidney toxicity	< MCL



**Results for Village of Milan Marcella Sandoval Well Water LSM-45 Compared to MCL/RSL Values**

Inorganic Chemicals	Results (mg/L) 10/6/2014	Primary MCL <sup>1</sup> or TT <sup>1</sup> (mg/L) <sup>2</sup>	Secondary MCL (SMCL) <sup>1</sup> (mg/L) <sup>2</sup>	RSL <sup>5</sup> Non-Cancer Child (mg/L)	Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)	Results Compared to MCL/RSL
Aluminum	0.1 U	-----	0.05 to 0.2		Colored water	ND
<a href="#">Antimony</a>	0.002 U	0.006			Increase in blood cholesterol; decrease in blood sugar	ND
<a href="#">Arsenic</a>	0.002 U	0.010 as of 01/23/06			Skin damage or problems with circulatory systems, and may have increased risk of getting cancer.	ND
<a href="#">Barium</a>	0.037	2			Increase in blood pressure	< MCL
<a href="#">Beryllium</a>	0.005 U	0.004			Intestinal lesions	ND
<a href="#">Cadmium</a>	0.005 U	0.005			Kidney damage	ND
<a href="#">Chromium (total)</a>	0.01 U	0.1			Allergic dermatitis	ND
Chloride	38	-----	250		Salty taste	< SMCL
<a href="#">Copper</a>	0.02 U	1.3 TT <sup>6</sup> ; Action Level=1.3	1.0		Short term exposure: Gastrointestinal distress. Long term exposure: Liver or kidney damage. People with Wilson's Disease should consult their personal doctor if the amount	ND

Results for Village of Milan Marcella Sandoval Well Water LSM-45 Compared to MCL/RSL Values						
Inorganic Chemicals	Results (mg/L) 10/6/2014	Primary MCL <sup>1</sup> or TT <sup>1</sup> (mg/L) <sup>2</sup>	Secondary MCL (SMCL) <sup>1</sup> (mg/L) <sup>2</sup>	RSL <sup>5</sup> Non-Cancer Child (mg/L)	Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)	Results Compared to MCL/RSL
					of copper in their water exceeds the action level. Metallic taste; blue-green stain	
Fluoride	0.3	4	2		Bone disease (pain and tenderness of the bones); Children may get mottled teeth. Tooth discoloration above the secondary MCL.	< MCL
Iron	0.025 U	-----	0.3		Rusty color; sediment; metallic taste; reddish or orange staining.	< SMCL
<u>Lead</u>	0.002 U	TT <sup>6</sup> ; Action Level=0.015			Infants and children: Delays in physical or mental development; children could show slight deficits in attention span and learning abilities  Adults: Kidney problems; high blood pressure	ND
Manganese	0.005 U	-----	0.05		Black to brown color; black staining; bitter metallic taste.	ND
<u>Mercury (inorganic)</u>	0.0002 U	0.002			Kidney damage	ND
Molybdenum	0.002 U	-----	-----	0.1	Increased uric acid in blood-Gout	ND
Nickel	0.02 U	-----	-----	0.390	Decreased body and organ weights	ND

**Results for Village of Milan Marcella Sandoval Well Water LSM-45 Compared to MCL/RSL Values**

<b>Inorganic Chemicals</b>	<b>Results (mg/L) 10/6/2014</b>	<b>Primary MCL<sup>1</sup> or TT<sup>1</sup> (mg/L)<sup>2</sup></b>	<b>Secondary MCL (SMCL)<sup>1</sup> (mg/L)<sup>2</sup></b>	<b>RSL<sup>5</sup> Non-Cancer Child (mg/L)</b>	<b>Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)</b>	<b>Results Compared to MCL/RSL</b>
<a href="#"><u>Nitrate (measured as Nitrogen)</u></a>	NA	10			Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	NA
<a href="#"><u>Nitrite (measured as Nitrogen)</u></a>	NA	1			Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	NA
Nitrate + Nitrite as Nitrogen	3.72	1			Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	>MCL
pH	7.37	-----	6.5-8.5		Low pH: bitter metallic taste; corrosion high pH: slippery feel; soda taste; deposits	Within Range
<a href="#"><u>Selenium</u></a>	0.0153	0.05			Hair or fingernail loss; numbness in fingers or toes; circulatory problems	< MCL
Silver	0.01 U	-----	0.1		Skin discoloration; graying of the white part of the eye	ND



Results for Village of Milan Marcella Sandoval Well Water LSM-45 Compared to MCL/RSL Values						
Inorganic Chemicals	Results (mg/L) 10/6/2014	Primary MCL <sup>1</sup> or TT <sup>1</sup> (mg/L) <sup>2</sup>	Secondary MCL (SMCL) <sup>1</sup> (mg/L) <sup>2</sup>	RSL <sup>5</sup> Non-Cancer Child (mg/L)	Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)	Results Compared to MCL/RSL
Sulfate	374	-----	250		Salty taste	> SMCL
<a href="#">Thallium</a>	0.002 U	0.002			Hair loss; changes in blood; kidney, intestine, or liver problems	ND
Total Dissolved Solids (TDS)	916	-----	500		Hardness; deposits; colored water; staining; salty taste	> SMCL
Vanadium	0.02 U	-----	-----	0.086	Decreased hair cysteine – brittle hair	ND
Zinc	0.02 U	-----	5		Metallic taste	ND

### Maximum Contaminant Level (MCL) for Drinking Water

Results for Village of Milan Marcella Sandoval Well Water MW- 907 Compared to MCL/RSL Values				
Contaminant	Results (pCi/L) 2/9/2015	MCL or TT <sup>1</sup> (pCi/L) <sup>2</sup>	Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)	Results Compared to MCL
<a href="#"><u>Gross Alpha particles</u></a>	19.3-8.71 <sup>3</sup> = 10.59	15 picocuries per Liter (pCi/L)	Increased risk of cancer	< MCL
<a href="#"><u>Beta particles and photon emitters</u></a>	Cs-137 <sup>4</sup> =5.06 pCi/L Equivalent to 0.101 millirem per year	4 millirem per year	Increased risk of cancer	<MCL
<a href="#"><u>Radium 226 and Radium 228 (combined)</u></a>	Ra-226= 0.378 Ra-228= 0.67 Combined = 1.048	5 pCi/L	Increased risk of cancer	< MCL
Radon	NA	Proposed MCL 300/4000 pCi/L	Increased risk of cancer	See discussion in letter.
<a href="#"><u>Uranium</u></a>	13 µg/L	30 µg/L as of 12/08/03	Increased risk of cancer, kidney toxicity	< MCL

**Results for Village of Milan Marcella Sandoval Well Water MW-907 Compared to MCL/RSL Values**

<b>Inorganic Chemicals</b>	<b>Results (mg/L) 2/9/2015</b>	<b>Primary MCL<sup>1</sup> or TT<sup>1</sup> (mg/L)<sup>2</sup></b>	<b>Secondary MCL (SMCL)<sup>1</sup> (mg/L)<sup>2</sup></b>	<b>RSL<sup>5</sup> Non-Cancer Child (mg/L)</b>	<b>Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)</b>	<b>Results Compared to MCL/RSL</b>
<b>Aluminum</b>	0.45	-----	0.05 to 0.2		Colored water	>SMCL
<a href="#"><u>Antimony</u></a>	0.075	0.006			Increase in blood cholesterol; decrease in blood sugar	>MCL
<a href="#"><u>Arsenic</u></a>	0.036	0.010 as of 01/23/06			Skin damage or problems with circulatory systems, and may have increased risk of getting cancer.	>MCL
<a href="#"><u>Barium</u></a>	0.042	2			Increase in blood pressure	< MCL
<a href="#"><u>Beryllium</u></a>	0.0057	0.004			Intestinal lesions	>MCL
<a href="#"><u>Cadmium</u></a>	0.0067	0.005			Kidney damage	>MCL
<a href="#"><u>Chromium (total)</u></a>	0.067	0.1			Allergic dermatitis	< MCL
<b>Chloride</b>	88	-----	250		Salty taste	< SMCL
<a href="#"><u>Copper</u></a>	0.042	1.3 TT <sup>6</sup> ; Action Level=1.3	1.0		Short term exposure: Gastrointestinal distress. Long term exposure: Liver or kidney damage. People with Wilson's Disease should consult their personal doctor if the amount	< MCL



**Results for Village of Milan Marcella Sandoval Well Water MW-907 Compared to MCL/RSL Values**

Inorganic Chemicals	Results (mg/L) 2/9/2015	Primary MCL <sup>1</sup> or TT <sup>1</sup> (mg/L) <sup>2</sup>	Secondary MCL (SMCL) <sup>1</sup> (mg/L) <sup>2</sup>	RSL <sup>5</sup> Non-Cancer Child (mg/L)	Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)	Results Compared to MCL/RSL
					of copper in their water exceeds the action level. Metallic taste; blue-green stain	
Fluoride	0.3	4	2		Bone disease (pain and tenderness of the bones); Children may get mottled teeth. Tooth discoloration above the secondary MCL.	< MCL
Iron	2.9	-----	0.3		Rusty color; sediment; metallic taste; reddish or orange staining.	> SMCL
<u>Lead</u>	0.032	TT <sup>6</sup> ; Action Level=0.015			Infants and children: Delays in physical or mental development; children could show slight deficits in attention span and learning abilities  Adults: Kidney problems; high blood pressure	>MCL
Manganese	6.3	-----	0.05		Black to brown color; black staining; bitter metallic taste.	>SMCL
<u>Mercury (inorganic)</u>	0.00006	0.002			Kidney damage	< MCL
Molybdenum	0.038	-----	-----	0.1	Increased uric acid in blood-Gout	< RSL
Nickel	0.051	-----	-----	0.390	Decreased body and organ weights	< RSL

**Results for Village of Milan Marcella Sandoval Well Water MW-907 Compared to MCL/RSL Values**

Inorganic Chemicals	Results (mg/L) 2/9/2015	Primary MCL <sup>1</sup> or TT <sup>1</sup> (mg/L) <sup>2</sup>	Secondary MCL (SMCL) <sup>1</sup> (mg/L) <sup>2</sup>	RSL <sup>5</sup> Non-Cancer Child (mg/L)	Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)	Results Compared to MCL/RSL
<u>Nitrate (measured as Nitrogen)</u>	6.2	10			Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	< MCL
<u>Nitrite (measured as Nitrogen)</u>	0.06	1			Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	< MCL
pH	7.14	-----	6.5-8.5		Low pH: bitter metallic taste; corrosion high pH: slippery feel; soda taste; deposits	Within Range
<u>Selenium</u>	0.042	0.05			Hair or fingernail loss; numbness in fingers or toes; circulatory problems	< MCL
Silver	0.02	-----	0.1		Skin discoloration; graying of the white part of the eye	< MCL
Sulfate	670	-----	250		Salty taste	> SMCL
<u>Thallium</u>	0.048	0.002			Hair loss; changes in blood; kidney, intestine, or liver problems	>MCL

**Results for Village of Milan Marcella Sandoval Well Water MW-907 Compared to MCL/RSL Values**

<b>Inorganic Chemicals</b>	<b>Results (mg/L) 2/9/2015</b>	<b>Primary MCL<sup>1</sup> or TT<sup>1</sup> (mg/L)<sup>2</sup></b>	<b>Secondary MCL (SMCL)<sup>1</sup> (mg/L)<sup>2</sup></b>	<b>RSL<sup>5</sup> Non-Cancer Child (mg/L)</b>	<b>Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)</b>	<b>Results Compared to MCL/RSL</b>
<b>Total Dissolved Solids (TDS)</b>	<b>1400</b>	-----	<b>500</b>		<b>Hardness; deposits; colored water; staining; salty taste</b>	<b>&gt; SMCL</b>
<b>Vanadium</b>	<b>0.13</b>	-----	-----	<b>0.086</b>	<b>Decreased hair cysteine – brittle hair</b>	<b>&gt;RSL</b>
<b>Zinc</b>	<b>0.17</b>	-----	<b>5</b>		<b>Metallic taste</b>	<b>&lt; SMCL</b>



## Definitions:

<sup>1</sup>Maximum Contaminant Level (MCL) - The highest level of a contaminant that is allowed in drinking water. Primary MCL refers to health-related effects and are enforceable standards.

<sup>1</sup>Secondary MCL (SMCL) refers to aesthetic (taste, odor, or color) effects and are non-enforceable guidelines.

<sup>1</sup>Treatment Technique (TT) - A required process intended to reduce the level of a contaminant in drinking water.

<sup>2</sup> Units are in milligrams per liter (mg/L) unless otherwise noted. Milligrams per liter are equivalent to parts per million (PPM). pCi/L = picocuries per liter.

U = Not detected (ND) at the reported detection level.

<sup>3</sup> Gross Alpha particle does not include alpha particles from uranium. Subtract uranium in pCi/L ( $13 \mu\text{g/l} \times 0.67 \text{ pCi}/\mu\text{g} = 8.71 \text{ pCi/L}$ ) from the gross alpha results and then compare to MCL value.

<sup>4</sup> A reasonable assumption is made here that the source of beta particles is a natural source and not man made. The energies of the natural source are expected to be closer to the Cs-137 energy than it is for Sr-90. Therefore the activity from Cs-137 as a reference was selected to represent activities coming from beta particles produced from natural decay progenies of Uranium.

<sup>5</sup> RSL = Regional Screening Level; Non-cancer effects; child exposure through the ingestion/dermal routes.

<sup>6</sup> Lead and copper are regulated by a treatment technique that requires systems to control the corrosiveness of their water. If more than 10% of tap water samples exceed the action level, water systems must take additional steps. For copper, the action level is 1.3 mg/L, and for lead is 0.015 mg/L.

ND = Not detected at the detection level.

NA = Not Available

< Less than;

> Greater than.

For more information, go to the EPA website <http://water.epa.gov/drink/contaminants/index.cfm>